

REMARKS

Claims 1-21 are currently pending in the subject application and are presently under consideration. Claim 20 is allowed. Claims 1, 10, 12, 14, 15, 18, and 21 have been amended as shown on pp. 2-5 of the Reply. Claim 19 has been cancelled.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I. Rejection of Claims 11 and 12 Under 35 U.S.C §112

Claims 11 and 12 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This rejection should be withdrawn for at least the following reasons. Claim 12 has been amended herein to cure the minor informality identified by the Examiner. Claim depends from claim 11. Accordingly, withdrawal of this rejection is requested.

II. Rejection of Claims 1-19 and 21 Under 35 U.S.C. §103(a)

Claims 1-19 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Chen *et al.* (U.S. Patent 6,542,400) in view of Oglesby *et al.* (U.S. Patent 6,656,763). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Chen *et al.* and Oglesby *et al.*, individually or in combination, do not disclose or suggest each and every element set forth in the subject claims.

Applicant's claimed invention relates to data storage devices, and more particularly to a system and method for providing ultra high-density memory using a MEMS actuator in combination with a metal sulfide based semiconductor memory media. To this end, independent claim 1 recites *a memory device comprising: a backplane lying upon a substrate; a metal sulfide based media overlying the backplane, the metal sulfide based media comprising an array of selectively conductive memory cells; and a microactuator assembly operative to move a plurality of probes over the memory cells to facilitate reading, writing, and erasing of selected cells, wherein the reading, writing, and erasing of the memory cell is performed by applying a bias voltage across the memory cell, which causes the memory cell to take on a desired impedance state, the impedance state representing the memory cell.* Independent claim 10 recites similar

features. Chen *et al.* and Oglesby *et al.* fail to disclose or suggest such novel aspects of the claimed invention.

In the subject Office Action, the Examiner concedes that Chen *et al.* fails to disclose or suggest a *metal sulfide based memory cell* and offers Oglesby *et al.* to cure this deficiency. The Examiner states that even though Oglesby *et al.* teaches a static memory array, the teachings of Oglesby *et al.* memory cell may be applied to a probe-based memory array environment. Applicant's representative respectfully disagrees. There is no motivation or suggestion in Oglesby *et al.* to employ a probe-based memory array. Furthermore, Oglesby *et al.* does not disclose or suggest a metal sulfide memory cell. Oglesby *et al.* relates to a method for making organic memory cells made of two electrodes with a controllably conductive media in between the electrodes. The controllably conductive media contains an organic semiconductor layer and a passive layer. The compounds that make up the passive layer include copper sulfide, silver sulfide, gold sulfide, etc. In the subject Office Action, the Examiner incorrectly interprets this disclosure of metal sulfide passive layer to the metal sulfide memory cell of the claimed invention. As mentioned *supra*, Oglesby *et al.* discloses organic memory cells (sandwiched between two conductive electrodes) and not metal sulfide based memory cell.

Independent claim 14, in part, recites a planar medium comprising of a metal sulfide based material and a conjugated polymer layer, the planar medium housing a plurality of memory cells. Chen *et al.* and Oglesby *et al.* fail to disclose or suggest such novel features.

Independent claim 15, in part, recites *positioning MEMS probes over selected metal sulfide based memory cells; applying a fixed voltage across a subset of the cells; determining the impedance of the subset of cells; and programming the metal sulfide memory cells based on the impedance levels*. Independent claim 18 and 21 recite similar features. In the subject Office Action, the Examiner contends that Chen *et al.* discloses applying voltage across a subset of cells at col. 5, ll. 53-65. Applicant's representative respectfully avers to the contrary. Chen *et al.* relates to a molecular memory system that includes a protective layer that is disposed over a molecular recording layer to enable a scanning probe to write information to and read information from a molecular element by direct electrical contact without substantial risk of damage to either the scanning probe or the molecular recording medium. To this end, Chen *et al.* discloses a molecular recording medium sandwiched between two electrodes, wherein one of the electrode is substantially planar and exposed for contact with a probe tip. On the other hand, the

claimed invention provides a metal sulfide based memory media comprising of an array of cell, wherein each cell is defined by the positioning of a MEMS probe above the memory media. The memory cells are programmed by applying voltage across a subset of the cells. Chen *et al.* does not disclose or suggest such novel features. Oglesby *et al.* fails to make-up for the aforementioned deficiency.

Based on at least the foregoing, Chen *et al.* and Oglesby *et al.*, individually or in combination, do not disclose or suggest each and every element of the claimed subject matter as recited in independent claims 1, 10, 12, 14, 15, 18, and 21 (and claims which depend there from). Therefore, this rejection should be withdrawn.

CONCLUSION

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063 [AMDP834US].

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

AMIN, TUROCY & CALVIN, LLP

/Himanshu S. Amin/

Himanshu S. Amin

Reg. No. 40,894

AMIN, TUROCY & CALVIN, LLP
24TH Floor, National City Center
1900 E. 9TH Street
Cleveland, Ohio 44114
Telephone (216) 696-8730
Facsimile (216) 696-8731